

DOCUMENT RESUME

ED 334 221

TM 016 694

AUTHOR Pitayanuwat, Somwung; Phattharayuttawat, Sucheera
TITLE Prenotification, Ink Color and Return Deadline:
Effects on Response Rates and Sincerity of
Responses.
SPONS AGENCY Chulalongkorn Univ., Bangkok (Thailand).
PUB DATE Apr 91
NOTE 18p.; Paper presented at the Annual Meeting of the
American Educational Research Association (Chicago,
IL, April 3-7, 1991). Faint type throughout.
PUB TYPE Reports - Research/Technical (143) --
Speeches/Conference Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Attitude Measures; *Data Collection; Foreign
Countries; *Mail Surveys; Public School Teachers;
Questioning Techniques; *Questionnaires; Rating
Scales; *Research Methodology; *Response Rates
(Questionnaires); Secondary Education; *Secondary
School Teachers; Teacher Attitudes; Test Format
IDENTIFIERS Sincerity of Responses

ABSTRACT

The effects of prenotification, ink color, and return deadline on sincerity and rates of response to mailed questionnaires concerning desirable characteristics of teachers were investigated in Thailand. Questionnaires were mailed to 800 public secondary school teachers in Bangkok. Some teachers received prenotification of the survey by mail, while others did not. The 100-item questionnaires were printed in blue, black, green, or red ink. For some questionnaires, a response rate was specified; others asked for return as soon as possible. The first mailing included a cover letter, the questionnaire, and a stamped self-addressed return envelope. The first follow-up was a reminder card. The second follow-up included a cover letter, a second copy of the questionnaire, and a stamped self-addressed return envelope. The first follow-up was sent 4 weeks after the initial mailing, and the second follow-up was sent 2 weeks after the first follow-up. The response rate of the initial mailing was 71.4%. The overall return rate was 94.9% (759 questionnaires). Sincerity of responses was judged by consistency in responding to eight pairs of parallel items measuring desirable characteristics of teachers. Significant main effects were found only for prenotification and ink color (blue and green), both of which were effective in increasing response rates and sincerity of responses at the initial mailing. Four tables present response data, and a map of Southeast Asia is provided. (SLD)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED334221

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

SOMWUNG PITIYANUWAT

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Prenotification. Ink Color and Return Deadline:
Effects on Response Rates and Sincerity of Responses

Somwung Pitiyanuwat

Sucheera Phattharayuttawat

Faculty of Education
Chulalongkorn University
Bangkok 5
Thailand 10330
Fax (662) 215-3558

Paper presented at the Annual Meeting of the
American Educational Research Association
Chicago, April, 1991

This research was supported by Ruchadapiseksompoch
Research Fund, Chulalongkorn University
Bangkok Thailand 10330

Tm1016694

Abstract

This study investigated the effects of prenotification, ink color and return deadline on response rates and sincerity of responses of mailed questionnaires. Eight hundred questionnaires were mailed to public secondary school teachers in the Bangkok Metropolis. The overall return rate was 94.9%. Significant main effects were found only for prenotification and ink color. Results suggest that prenotification and ink color, as defined in this study, are effective in increasing response rates and sincerity of responses.

Introduction

Mailed questionnaires have been and continue to be widely used as means of data collection in educational research and social science research, largely due to the convenience and to the relatively low expense involved. However, information obtained by using mailed questionnaires is not useful unless an acceptable response rate and sincerity of responses are achieved. In this research, sincerity of responses is defined as the consistency of responding to 8 pairs of parallel items measuring desirable characteristics of teachers. The measurement of sincerity of responses as defined above was found to be effective (Popham, 1981; Buabarn, 1980).

Factors effecting response rates to mailed questionnaires have been reviewed by several authors (for example : Heberlin and Bawngartner, 1978; Goyder, 1982) and include variables such as sample

characteristics, questionnaire characteristics, sponsorship, and personalization. A recent review of survey design effects on response rates indicates that personalization has a positive effect on responding (Yu and Cooper, 1983). Prenotification of potential respondents is one type of personalization conveying a sense of personal involvement on the part of the researcher. Heaton (1965) suggested that prenotifications are effective because they serve to introduce the researcher to the potential respondents. A more theoretical explanation was proposed by Ajzen and Fishbein (1980). Intention (to return questionnaire with sincere answers, in this case) is the construct that mediates between attitude toward and behavior in responding to mailed questionnaires. According to their theory of Reasoned Action, intention is hypothesized due to the individual attitude toward behavior and the expectations the person perceives others to hold about the behavior. Variables that effect either attitude or perceived expectations will effect response rate and also sincerity of responses. In this case, prenotification as an especially fruitful form of personalization is a variable that influences the potential respondent's perceptions of the research expectations. Thus, it is expected that prenotification will increase the rate of return and also the quality of responses.

Ink color is the second variable that may effect the response rate and also sincere answers of responses. In general, the most highly preferred surface colors for adults appear to be red and blue. Green is also ranked high. Generally ranked lowest are violet, orange, and yellow (Fleming and Levie, 1978). Matteson (1974) disclosed that no significant differences in rate of return were

found among the groups receiving the semipersonal letter, while among the groups receiving the form letter a significantly greater number of colored questionnaires were returned. In this research, it is hypothesized that the response rates and sincerity of responses of the red, blue and green ink color questionnaires are higher than those of black ones.

Return deadline is the third variable chosen. Henry (1975) found that the response rate of the non-specification return group (25.6%) was higher than that of the specification return deadline group (18.6%). Jamornmarn (1987) suggests that it is wise to specify on the questionnaire "please return immediately" rather than specifying exact dates. It is expected that return deadline of mailed questionnaire may be one of the variables that would increase not only the quantity but also quality of survey responses.

In summary, this study was designed to determine the effects of prenotification, ink color and return deadline on response rates and sincerity of responses of mailed questionnaires concerning desirable characteristics of teachers. Consistent with the theoretical perspectives and previous research, the following research hypotheses were formulated and tested in this study:

1. the response rates and sincerity of responses of the prenotification questionnaires are significantly higher than those of non-prenotification ones.
2. The response rates and sincerity of responses of the red, blue and green ink color questionnaires were significantly higher than those of black ones.

3. The response rates and sincerity of responses of the non-specification return questionnaires are significantly higher than that of the specification return deadline ones.

Method

Subjects

Subjects were public secondary school teachers in the Bangkok Metropolis. Eight hundred names were randomly selected by means of multistage random sampling from a population of 14,336 public secondary school teachers. The questionnaires were mailed to the subjects. A total of 759 or 94.9% returned the completed questionnaires. The response rate at the initial mailing was 71.4%

Procedure

The questionnaire used in this study had 100 four-point rating scale items including 8 parallel items, on six pages (double-sided). The length of time for survey completion was approximately 20 minutes. The questionnaire was concerned with desirable characteristics of teachers. The alpha coefficient of the questionnaire was .72.

Three experimental treatments were employed in this research. They were (a) prenotification (prenotified versus non-prenotified) (b) Ink color (Black, Blue, Green and Red) and (c) Return deadline (Specified versus non-specified)

Questionnaires were coded in the upper-right corner of the form to allow identification of respondents. The first mailing consisted of a cover letter, questionnaire, and a stamped, self-addressed return envelope. The first follow-up was a reminder card. The second follow-up consisted of a covering letter with a second copy of the questionnaire and a stamped, self-addressed return envelope. The first follow-up was sent after 4 weeks after the initial mailing and the second follow-up sent 2 weeks later. The overall response rate was 71.4% at the initial mailing and 23.5% to the follow-up mailing.

Two analyses were performed. Response rate was tested by Tukey's Test for Nonadditivity, and then transformed by using Arcsine transformation. Then, a $2 \times 4 \times 2$ factorial design was performed with Response rate as the dependent variable (Winer, 1971). The second was a $2 \times 4 \times 2$ factorial design with sincerity of responses (scored from 0 to 8) as the dependent variable. Z-test and sheffe were post hoc analyses used in this study.

Results

Effects of prenotification ink color and return deadline on response rates

Data in Table 1 shows that the response rates of the prenotification questionnaires were higher than those of the non-prenotification ones. The response rates of the blue ink color ranked the highest while the response rates of the black ink color questionnaires were the lowest. The response rates of the specification and non-specification return deadline questionnaires were slightly different.

From table 2, Anova was applied to test the research hypotheses. It was found that prenotification and ink color had a significant effect on response rates only at the initial mailing. Post hoc analysis further indicated that the response rates of the prenotification questionnaires were higher than those of the non-prenotification ones. The response rates of the blue and green ink color questionnaires were significantly higher than those of the red and black ones.

Table 1 Response Rates of Mailed Questionnaires Classified by Variables namely, Prenotification, Ink Color and Return Deadline

	Follow-up period	Initial mailing		Follow-up mailing	
Variables		No.	%	No.	%
Prenotification					
Prenotified	(n = 400)	309	77.25	383	95.75
Non-prenotified	(n = 400)	262	65.50	376	94.00
Ink Color					
Black	(n = 200)	114	57.00	186	93.00
Blue	(n = 200)	170	85.00	194	97.00
Green	(n = 200)	157	78.50	190	95.00
Red	(n = 200)	130	65.00	189	94.50
Return Deadline					
Specified	(n = 400)	278	69.50	373	93.25
Non-specified	(n = 400)	293	73.25	386	96.50
Total (n = 800)					
		571	71.38	759	94.88

Table 2 Analysis of Variance Summary Table Showing the effects of prenotification, ink color and return deadline on response rates of mailed questionnaires.

Follow-up Period		Initial mailing	Follow-up mailing
Source of Variation	df	F	F
Prenotification (P)	1	45.08**	2.54
Ink Color (IC)	3	52.64**	2.22
Return Deadline (RD)	1	4.59	0.59
PxIC	3	3.18	0.32
PxRD	1	1.65	0.45
ICxRD	3	0.46	0.73
PxICxRD	3	-	-
Nonadditivity	1	0.01	0.08
Balance	2		

**p < .01

Effects of prenotification, ink color and return deadline on
sincerity of responses

Table 3 shows the means and standard deviations of sincerity of responses classified by the experimental variables (prenotification ink color and return deadline). The means of the sincerity of responses in each subgroup at the initial mailing ranged from 4.07 to 7.11. While they ranged from 4.13 to 6.18 at the follow-up mailing. Results from Table 4 indicate that prenotification and ink color had significant effects on sincerity of responses at the initial mailing. Post hoc analyses further indicated that the sincerity of responses on the prenotification group were significantly higher than those of the non-prenotification group. The sincerity of responses of the blue and green ink color questionnaires were significantly higher than those of the red and black ones. At the follow-up mailing, the prenotification was the only experimental variable that still had significant effects on sincerity of responses of mailed questionnaires.

Table 3 Statistical Baseline Data of Sincerity of Response
classified by Variables Namely, Prenotification, Ink
Color and Return Deadline.

Initial Mailing													
Prenoti- fication	Prenotified						Prenoti- fication	Non-Prenotified					
	Deadline Specified			Deadline Non- Specified				Deadline Specified			Deadline Non- Specified		
Ink Color	N	X	SD	N	X	SD	Ink Color	N	X	SD	N	X	SD
Black	31	5.91	0.94	30	5.81	1.01	Black	25	4.04	1.44	28	4.18	1.61
Blue	46	7.01	0.88	48	7.11	0.97	Blue	38	6.41	0.82	38	6.61	0.93
Green	39	6.79	0.76	42	7.04	0.91	Green	36	6.25	0.95	40	6.07	1.06
Red	37	5.66	1.05	36	5.71	0.84	Red	26	4.16	1.12	31	4.07	0.94

Follow-up Mailing

Black	15	5.31	0.98	18	4.41	0.56	Black	19	4.50	0.58	20	4.75	0.96
Blue	3	6.18	0.71	5	6.04	1.01	Blue	9	5.66	1.16	8	5.93	0.70
Green	8	6.01	0.81	7	6.11	0.98	Green	11	5.68	1.24	7	5.91	0.89
Red	11	5.03	0.97	12	4.61	0.97	Red	19	4.13	1.04	17	4.67	0.58

Table 4 Analysis of Variance Summary Table showing the effects of Prenotification, Ink color and Return Deadline on Sincerity of Responses.

Follow-up Period				
Source of Variation	<u>Initial Mailing</u>		<u>Follow-up Mailing</u>	
	df	F	df	F
P	1	36.76**	1	11.40**
IC	3	4.54**	3	2.60
RD	1	2.67	1	1.24
PxIC	3	2.59	3	4.99**
PxRD	1	3.72	1	1.73
ICxRD	3	1.32	3	0.31
PxICxRD	3	2.91	3	2.39
Within Cells	544		80	

** p < .01

Discussion

The overall response rate (94.9%) and the response rate at the initial mailing (71.4%) of public school teachers in the Bangkok Metropolis to mailed questionnaires were at the upper end of an acceptable limit. Consistent with previous research (Green and Kvidahl, 1989; Dillman et.al, 1984) and the research hypotheses, at the initial mailing prenotification and ink color had significant effects on response rates and sincerity of responses. This finding, consistent with Dillman et al. (1984), suggests that the effects of personalization may be greater when on follow-up mailing is intended.

No significant effects of prenotification and ink color on response rates were found on the follow-up mailing. This may be because the follow-up technique used in this study was very effective. Thus, the response rate in each subgroup almost hit the ceiling (>90%)

It was found that the response rates and sincerity of responses of the blue and green ink color questionnaires were significantly higher than those of the red and black ones. Subjects preferred cool colors (blue and green) to the stronger chroma or red (Tinker and Patterson, 1969). Thus, the cool colors appear to increase the response rate and sincere answers of mailed questionnaires.

Contrary to the third research hypothesis, the response rates and sincerity of responses of the specification return deadline questionnaires did not differ significantly from those of the non-specification return deadline questionnaires. Both types of return deadline had some advantages and disadvantages. Beyond the

dates specified, the subjects may stop responding to the survey. For the non-specification return deadline group, they felt obliged to answer the mailed questionnaires. Thus, the return deadline (specified versus non-specified) did not affect on response rates and sincerity of responses of mailed questionnaires.

Prenotification was the only variable that had significant effects on the sincerity of responses at both the initial mailing and the follow-up mailing. Thus, prenotification increased survey return and also increased sincerity of answers of mailed questionnaires. If response rates with sincere answers are to be maximized, prenotification, ink color(blue or green) and repeated follow-up seem in order.

References

- Ajzen, I & Fishbein, M.(1980) Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ : Prentice-Hall
- Buabarn, A. (1980). "A comparison of relationships between results from responding to questionnaires with using different techniques to detect sincerity of responses". Master thesis. Department of Educational Research Faculty of Education, Chulalongkorn University (in Thai)
- Dillman, D.A., Dillman, J.J. & Makela, C.J (1984)". The importance of adhering to details of the total design method (TDM) for mail surveys". In D.C. Lockhart (Ed) Making effective use of mailed questionnaires. San Francisco : Jossey-Bass
- Fleming, M. and Levie, W.H. (1978) Instructional Message Design. NJ : Engle Wood Cliffs.
- Goyer, U.C. (1982). "Further evidence on factors affecting response rates to mailed questionnaires. American Sociological Review, 47, 550-553.
- Green, K.E. & Kvidahl, R.R. (1989). "Personalization and Offers of Results : Effects on Response Rates". Journal of Experimental Education, 57, 263-270.
- Heaton, E.E. Jr (1965). "Increasing mail questionnaire returns with a preliminary letter". Journal of Advertising Research, 5, 35-39.
- Hebertern, T.A. & Baumgartner, R. (1978). "Factors affecting response rates to mailed questionnaires : A quantitative analysis of the published literature". American Sociological Review, 43, 447-462.

- Henry, J.R. (1975). "Response rate to mail questionnaire with a return deadline". Public Opinion Quarterly, 40, 374-375.
- Jamornmarn, U. (1987) Questionnaires : construction and Use, Bangkok, Thailand (in Thai)
- Matteson, M.T. (1974) "Type of transmittal letter and questionnaire color as two variables influencing response in a mail survey." Journal of Applied Psychology, 59, 535-536.
- Popham, W.J. (1981) Modern Educational Measurement. Engle wood Cliffs, M.J. Prentice Hall.
- Tinker, M.A. and Patterson, D.G. (1969). "Study of Typographical factors influencing speed of reading : VII variations in color of print and background". Journal of Applied Psychology, 15, 471-479.
- Winer, B.J. (1971). Statistical Principles in Experimental Design 2nd. ed. McGraw Hill Kogakuska, Ltd.
- Yu, J. and Cooper, H. (1983). "A quantitative review of research design effects on response rates to questionnaires". Journal of Marketing Research, 20, 36-40.

THE COUNTRY

Thailand (formerly Siam) is a tropical country situated in the centre of mainland Southeast Asia. The principal geographical feature of the country which covers most of its area of 198,455 square miles (514,000 square kilometres) consists of mountain ranges in the north, west, south and east, and plain in the central part which is the main populated area and the base of the country's economy. The mountain chain in the west separates Thailand from Burma and trails down the spine of the extended peninsula to the southern border with West Malaysia. The northeast is bound by the Mekong River, forming the frontier with Laos, while the eastern part of the country is separated from Cambodia by mountain chains.



Figure 1.1: The map of Southeast Asia